**AMENDMENTS TO THE CLAIMS:**

Please cancel claims 3 and 12-17 and amend claims 1, 7, 18 and 20 as follows. The following listing of claims will replace all prior versions and listings of claims in the application.

**LISTING OF CLAIMS:**

1. (Currently amended) A method for acquiring a three-dimensional image data set of a moving organ of a body of a patient, comprising the steps of:

defining a plurality of different x-ray positions of an X-ray device including an X-ray source and an X-ray detector required to obtained the three-dimensional image data set, the X-ray positions being situated in a common plane,

detecting a motion signal related to ~~the~~ periodic motion of the organ and including a low-motion phase,

simultaneously with detection of the motion signal, successively moving the X-ray device to all of the X-ray positions in an X-ray cycle and acquiring a plurality of projection data sets required for ~~the~~ formation of the three-dimensional image data set, each of the projection data sets being acquired when the X-ray device is in a respective one of the X-ray positions,

successively completing a plurality of X-ray cycles,

controlling ~~the~~ movement of the X-ray device and the acquisition of the projection data sets by the X-ray device by means of the motion signal such that a projection data set during a low-motion phase of the organ required for the formation of the three-dimensional image data set is acquired when the X-ray device is in each X-ray position, said step of controlling the movement of the X-ray device comprising the step of controlling the X-ray device by means of the motion signal such that each X-ray cycle commences in a different phase of motion of the organ,

and

using the projection data sets acquired during the low-motion phases for the formation of the three-dimensional image data set.

2. (Previously Presented) The method as claimed in claim 1, wherein only the projection data sets acquired during the same motion phases are selected and used.

3. Cancelled.

4. (Previously Presented) The method as claimed in claim 1, wherein the X-ray device is controlled by means of the motion signal such that projection data sets are acquired only during low-motion phases of the organ.

5. (Previously Presented) The method as claimed in claim 1, wherein the X-ray device is controlled by means of the motion signal such that the X-ray source is switched on to acquire projection data sets exclusively during low-motion phases of the organ.

6. (Previously Presented) The method as claimed in claim 1, wherein a respiratory motion signal dependent on the patient's respiration is acquired as a motion signal.

7. (Currently Amended) The method as claimed in claim 1, wherein a cardiac motion signal dependent on the motion of the heart of the patient is acquired as the motion signal.

8. (Previously Presented) The method as claimed in claim 7, wherein in addition to the cardiac motion signal, a

respiratory motion signal dependent on respiratory motion is acquired, further comprising using the respiratory motion signal to ensure that only projection data sets acquired during the same respiratory motion phases are used to form the three-dimensional image data set.

9. (Previously Presented) The method as claimed in claim 8, wherein the respiratory motion signal is used to correct, during the formation of the three-dimensional image data set, the projection data sets acquired in different respiratory motion phases and the shifts in position of the organ resulting therefrom.

10. (Previously Presented) The method as claimed in claim 6, further comprising informing the patient that a desired respiratory motion phase has been reached based on the respiratory motion signal.

11-17. (Canceled)

18. (Currently Amended) A method for acquiring a three-dimensional image data set of a moving organ of a body of a patient, comprising the steps of:

defining a plurality of different positions of an X-ray device including an X-ray source and an X-ray detector, the X-ray positions being situated in a common plane;

detecting a motion signal related to ~~the~~ periodic motion of the organ and including a low-motion phase;

simultaneously with detection of the motion signal, moving the X-ray device to each of the X-ray positions and when the X-ray device is in each of the X-ray positions, determining whether a low-motion phase of the motion signal is present and if so,

acquiring a projection data set;

continuing ~~the~~ movement of the X-ray device to all of the X-ray positions until a projection data set is acquired when the X-ray device is in each of the X-ray positions; and

using the projection data sets acquired during the low-motion phases for ~~the~~ formation of the three-dimensional image data set.

19. (Previously Presented) The method of claim 18, further comprising the steps of:

maintaining the X-ray device in each X-ray position when the low-motion phase of the motion signal is not present; and

continuously determining whether the low-motion phase is present until a positive determination is obtained and thereafter acquiring the projection data set and then moving the X-ray device to another X-ray position.

20. (Currently Amended) The method of claim 18, further comprising the steps of:

correlating ~~the~~ presence of the X-ray device in each of the X-ray positions and the acquisition of the projection data sets based on the motion signal such that the X-ray device is present in a new X-ray position at a fixed instant within a given phase of motion; and then

acquiring at the same time a correction data set so that all projection data sets are acquired at the same instant within a phase of motion.

21. (Previously Presented) The method of claim 18, further comprising the steps of:

defining a sequence of the X-ray positions; and

moving the X-ray device successively through each of the X-ray positions in the defined sequence of X-ray positions.--